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August 5, 2013

## Air Gap Advice

The space between the rotor and stator of an electric motor is called the air gap. A large air gap requires high magnetizing current, hence lowering power factor and reducing the performance of the motor. To obtain good operation, the air gap should be made as small as possible. Anything that may increase the air gap, such as grinding the rotor laminations, or filing stator teeth should be avoided to prevent increased magnetizing current and lower power factor.

To prevent damage to the insulation on the coils, the air gap should be tested periodically with the PdMA EMAX tester. The Eccentricity test is used to determine air gap anomalies and/or to trend changes in air gap by identifying and evaluating the amplitude of sidebands that develop around the Eccentricity Frequency (Fecc).  $Fecc = \# \text{ of rotor bars} \times \text{speed of the shaft}$ .

Source: *TPC Training-Principles of Three Phase Motors*

You are invited to submit an Electric Motor Testing Tip of your own and receive a free PdMA mug or hat if we publish it! Contact Lou at 813-621-6463 ext. 126 or [lou@pdma.com](mailto:lou@pdma.com).

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